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INFORMATION PROCESSING

A. PROGRAM RATIONALE AND PHILOSOPHY

The Information Processing strand is one component of the Career and Technology Studies program and represents a study of electronic technology as it applies to personal use and the business environment. It is the basis for all educational computer activities, including telecommunication processes, keyboarding, software applications, and programming. In order to understand the shift from an *Industrial Society* towards an Information Age, it is important that a student first understands the significance of the current technological development and how technology affects an individual's life as well as the impact it has on the world of work.

The learning activities of this strand are intended to articulate with comparable learning activities which occur at both the junior high school and post-secondary levels of education. Content levels in this strand are categorized as introductory, intermediate, or advanced and these labels identify the expected skill development and expertise that the successful student will obtain. The content and learning activities included in this strand are designed to meet the goals of schooling and education as mandated by Alberta Education.

An overview of the content in the Information Processing strand indicates that the various modules encompass four basic areas:

- electronic communication processes and environments, including notemaking skill development and an identification of technological issues which impact society;
- word processing commands and functions, including the development of keyboarding skills;
- application software activities, including spreadsheet, database, graphics, hypermedia, and desktop publishing;
- programming opportunities, including machine-oriented, procedure-oriented, and object-oriented computer programming, hypermedia programming, graphics-sound-animation programming, robotics/artificial intelligence programming, and system analysis and design simulations.

Through a cross-discipline approach to computer education, students will have an opportunity to develop both personal-use and vocationally-oriented skills in a range of application areas that could lead to job-entry levels of employment or provide prerequisite access to other post-secondary programs of study. As hardware technology and software development continues to evolve, students will be expected to acquire not only basic functional competency skills but also be able to integrate or transfer these skills to other problem-solving applications and other computer operating systems as required.

B. GENERAL LEARNER EXPECTATIONS

The skills developed through the study of Information Processing modules can be transferred to all areas of a student's life: as an individual, as a consumer within the market place, as a participant in a technological environment, and as a life-long learner.

The content within Information Processing provides for the development of:

1. a meaningful study of technological trends
2. an understanding of the ethical and societal issues concerning technological development and its impact on society
3. development of technological skills and knowledge designed for personal use
4. development of transferable technological skills and knowledge to other curriculum areas
5. development of technological skills and knowledge required for the world of work.

The student will:

- identify the impact that the evolving technology has on society
- use a variety of electronic media in the communication process
- apply effective notemaking skills
- demonstrate efficient keyboarding skills
- utilize word processing commands and functions
- develop software competencies in spreadsheet, database, graphics, hypermedia, desktop publishing applications
- design algorithms and code syntax instructions
- work with artificial intelligence, robotic systems, and virtual environments
- complete computer integrated/merged simulation projects.

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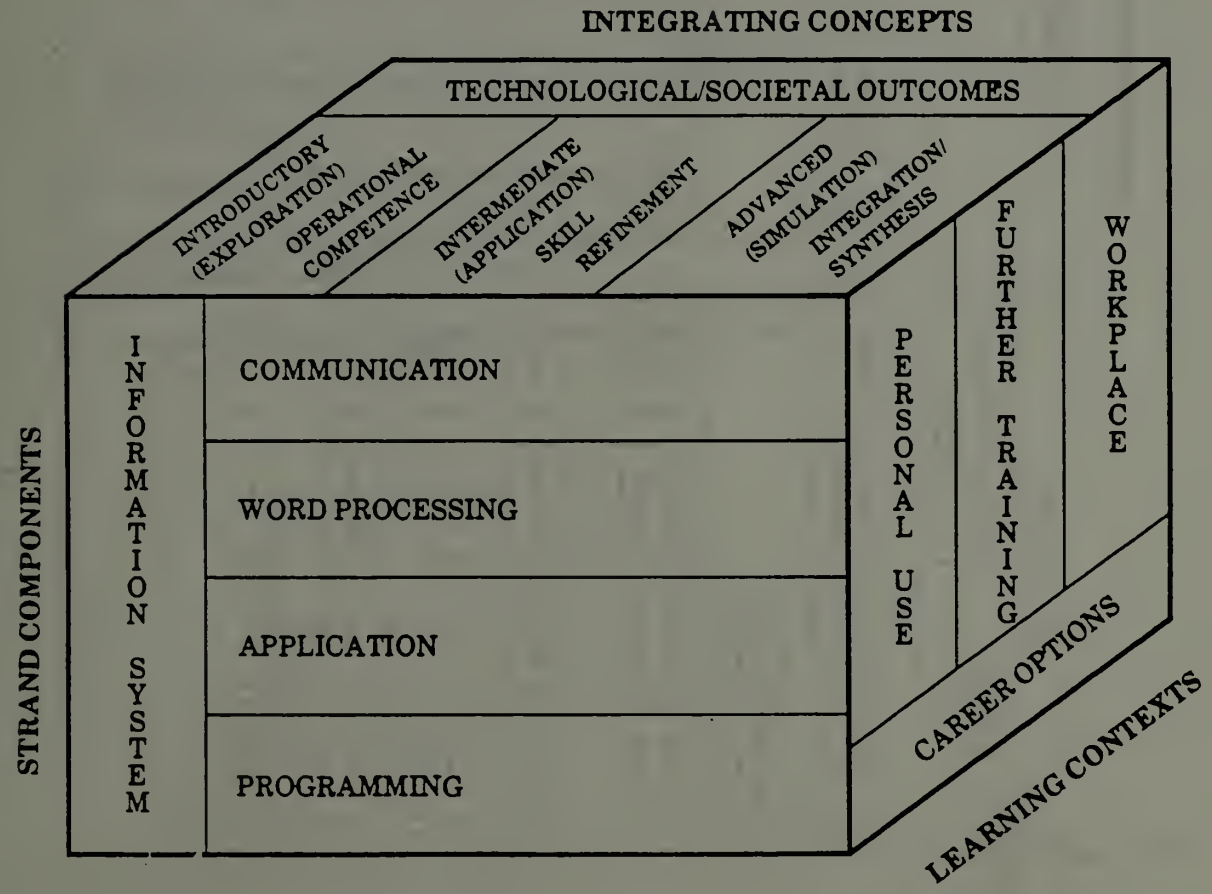
C. STATEMENT OF CONTENT

MODEL FOR THE INFORMATION PROCESSING STRAND

This module depicts the major focus of the Information Processing strand. The three dimensions provide the basis for selecting and organizing the specific content.

- The INTEGRATING CONCEPTS represented on the upper face of the model, identify sequential skill development levels for the program and address competency-based learning outcomes common to each component of the strand.
- The LEARNING CONTEXTS, represented on the right face of the model, foster the development of knowledge and behaviours that will enable students to meet the demands of daily living, further training, and the workplace expectations.
- The STRAND COMPONENTS provide situational and concrete learning experiences where knowledge, skills, and attitudes that relate to the integrating concepts and learning contexts are linked. Each strand component focuses on the one aspect of the information system utilizing computer technology.



INFORMATION PROCESSING

	INTRODUCTORY	INTERMEDIATE	ADVANCED	STRAND NAME
Foundation	Keyboarding Information Management Procedures			
Expansion	Electronic Office Telecommunications Business Communications Societal Issues Notemaking Basics Notemaking Skill Building	Business Protocol Records Management Notemaking Applications	Business Simulations 1 Business Simulations 2 Human Issues	ELECTRONIC AND BUSINESS COMMUNICATIONS
	WP Skill Building WP Personal Applications WP Personal/ Business Applications WP Business Applications	WP Business Tables Applications WP Reports Business WP Advanced Address/Letters	WP Simulation 1 WP Simulation 2	WORD PROCESSING
	Spreadsheet 1 Data Base 1 Chart Graph Hyper Media Presentation Graphics Publishing Paint/Draw Desk Top Publishing	Business Graphics Keyboard Transcription Spreadsheet Applications 2 Data Base Applications 2 Desk Top Video Keyboard Transcription Integrated Applications Hyper Media Applications	Integrated Simulation Keyboard Transcription Simulation Hyper Environment Simulation Desk Top Simulation	APPLICATIONS
	Structured Programs Decision Control Sub routines Arrays Disk and Software Management Graphics Sound Animation	Numeric/Text File Structured Handling File Files Sets and Linkages Robotics System Analysis and Design Technical Issues CMU/CAL	Logical Arithmetic Inst Control Codes Macros Technique Procedures Disk File Artificial Intelligence Virtual Environment System Design COP Programming	PROGRAMMING

PART D: CONGRUENCY WITH SPECIFIC AREA OF STUDY/STRAND

Name of Resource:_____

Area of Study/Strand: **INFORMATION PROCESSING (Draft)**

In this resource, support for the learner expectations outlined is as follows:

LEARNER EXPECTATIONS	RESOURCE CORRELATION
GENERAL LEARNER EXPECTATIONS Students will: • identify the impact that the evolving technology has on society • use a variety of electronic media in the communication process • apply effective notemaking skills • demonstrate efficient keyboarding skills • utilize word processing commands and functions • develop software competencies in spreadsheet, database, graphics, hypermedia, desktop publishing applications • design algorithms and code syntax instructions • work with artificial intelligence, robotic systems, and virtual environments • complete computer integrated/merged simulation projects.	

LEARNER EXPECTATIONS	RESOURCE CORRELATION
Module 1: Information Management Processes **Module Learner Expectations** The student will: • demonstrate basic computer literacy knowledge about the computer system • develop computer operating system competency • explore a range of application software packages • use word processing, spreadsheet, database, and communication software at a basic competence level.	
Module 2: Keyboarding/Word Processing Basic **Module Learner Expectations** The student will: • touch-keystroke at 15 words a minute on the alphabetic, numeric, and service keys • demonstrate basic operating system competence including word processing functions of editing and formatting.	
Module 3: Electronic Office **Module Learner Expectations** The student will: • apply acceptable office etiquette • use effective interpersonal skills • demonstrate efficient time and work space applications • describe a organizational structure/functions • participate in a work study program.	

LEARNER EXPECTATIONS	RESOURCE CORRELATION
Module 4: Telecommunications **Module Learner Expectations** The student will: • explain characteristics of various telecommunication systems and software applications • identify file types (text and binary), protocol specifications, data transmission facilities, and processing/reception/transmission components (carriers, channels, distribution) • create, receive, and transmit communication documents • demonstrate electronic communication competence by operating electronic hardware configurations, system components and compatible software.	
Module 5: Notemaking **Module Learner Expectations** The student will: • improve study skills • develop note coding techniques • demonstrate acceptable alphabetic system handwriting/keyboarding notemaking skills • produce useful output from notemaking activities.	
Module 6: Business Communication **Module Learner Expectations** The student will: • prepare written communications to office standards • demonstrate effective oral communication • use resource support – dictionary/spell checker, thesaurus, handbooks.	

LEARNER EXPECTATIONS	RESOURCE CORRELATION
Module 7: Societal Issues **Module Learner Expectations** The student will: • describe the impact of technology issues on society—at home and in the workplace, versatility, social dependency, future directions • discuss the ramifications of technology on the indivdual-literacy, privacy, moral, legal issues • identify societal concerns—protection, vulnerability, computer crime.	
Module 8: Word Processing **Module Learner Expectations** The student will: • develop touch-keystroking competence on the alphabetic, numeric, service, and function keys • create, store, retrieve, and print word processing files • use word processing editing, formatting and graphics features • produce from formatted/rough draft copy mailable application output for memos, letters, tables, and manuscripts.	

LEARNER EXPECTATIONS	RESOURCE CORRELATION
Module 9: Application Software **Module Learner Expectations** The student will: • demonstrate spreadsheet competence—file creation, data entry, editing, data selection, data manipulation, formatting, and information output • demonstrate database competence—file creation, data entry, editing, data selection, data manipulation, formatting, and information output • demonstrate graphics competence—clip-art, draw tools, and paint tools • demonstrate hypermedia competence—file creation; establish/link hierarchical relationships; data, text, graphics entry/manipulation/selection; special effects including sound and animation; object-oriented programming • demonstrate desktop publishing comptence—design layout, graphics tools, creating/manipulating text and graphics, formatting output (colour, fonts, styles), creating templates and special effects, scanning images and producing output.	

LEARNER EXPECTATIONS	RESOURCE CORRELATION
Module 10: Computer Programming **Module Learner Expectations** **The student will:** • design algorithms to demonstrate problem-solving/logic competence • code in at least one of the following: – machine-oriented programming languages – procedure-oriented programming languages – object-oriented programming languages • demonstrate programming competence by writing code for the following computer functions: – file handling – data types – data input – decision control – subroutines/functions – sets and linkage structure – output • demonstrate competence in graphics programming—object creation, animation, sound, colour • demonstrate ability to utilize/program robotic systems and artificial intelligence simulations • demonstrate competence in system analysis, design, and implementation activities.	

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